~~applying a high-energy vibrating force including one of an electromagnetic vibrating~~ force and an ultrasonic vibrating force to the metallic material at temperatures lower than a melting point thereof during a solidification process of the molten metallic material to form cavities in the molten metallic material; and

crushing into small pieces, via impact pressure generated during collapse of the cavities, solid particles of the metallic material generated during the solidification process to yield a refined microstructure of the metallic material.

16. (New) The method of Claim 15, further comprising:

shifting the refined metallic material to a periphery of the metallic material via simultaneous imposition of an electric current and a magnetic field on the metallic material during the solidification process thereof.

17. (New) The method of Claim 15, wherein an electric current and a magnetic field are applied simultaneously to the metallic material.

~~18. (New) The method of Claim 15, wherein a high-energy vibrating force is applied~~ to the metallic material at temperatures lower than a melting point thereof during last stages ~~of the solidification process.~~

REMARKS

Favorable reconsideration of the present application in light of the above amendment and in light of the following discussion is respectfully requested.

Claims 15-18 are presently active in the case, with Claims 11-14 cancelled and with Claims 15-18, corresponding to subject matter from Claims 11-14, added, by way of the present amendment, without the introduction of new matter (see, e.g., original Claims 1-10 as filed, cancelled Claims 11-14 and Fig. 1 and the discussion in Applicants' disclosure thereof).